Usability Evaluation of an On-line Nursing Assessment

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Background. Evaluating the usability of a computer system is an important way to guide development. One method of studying usability is known as think-aloud protocol analysis. In this method, users are instructed to verbalize actions and thoughts as they proceed through a particular task.[1]

In January 1994, an automated nursing assessment was implemented at Beth Israel Hospital, Boston.[2] As part of the Clinical Information system, the assessment can be accessed by all authorized clinicians. Marjorie Gordon's Functional Health Patterns was utilized as the organizing framework for the nursing assessment. This on-line nursing assessment is required for all hospitalized patients. Over 2000 assessments are completed each month, and 98% of all admissions have an on-line nursing admission assessment. Once a patient has an assessment on-line, information can be updated on subsequent admissions.

Methods. While completing an actual assessment, nurses were instructed to verbalize their thoughts. Direct observation and a taped recording of the nurse-computer interaction was obtained. The observer recorded keystrokes, content area, and the use of structured versus free text. The evaluation took place on the patient unit, at a central terminal. The entire interaction was tape recorded, and the nurses were cued to talk aloud while entering information.

A total of ten nurses from five different inpatient units and one ambulatory outpatient clinic were observed. Length of experience with the on-line assessment varied from three weeks and three years. Weekly use of the program by the participants ranged from one to five times per week.

Findings. The novice user (3 weeks experience with the on-line nursing assessment) could not complete the assessment in one sitting. She had to stop the program, go to the patient and ask for additional information, log on to the system again and continue with the assessment program. The novice user frequently had difficulty locating where to enter specific information in the assessment, and therefore used free text fields instead of the structured content. Editing was also a problem. By repeatedly striking the <Backspace> key, the novice user deleted outdated information one character at a time.

In contrast, the expert user (1.5 to 3 years experience with the on-line nursing assessment) quickly completed the assessment in one session. The nurse knew where to find specific content, and used the structured format to construct the assessment. All but one of the nurses used the <Backspace> key for deleting outdated information one character at a time.

Discussion. There was a difference in the use of the program between the novice and expert user. This difference was also found in the study by Kushniruk et al.[3] Only one nurse knew advanced editing techniques. The novice user had difficulty finding specific content. Education regarding editing techniques as well as enhancements to the program design will be included in the upgraded nursing assessment program.

In addition to the recorded observations, one nurse summarized the value of the on-line nursing assessment with the following comments: "I really like the FHPA (nursing assessment), it's very detailed. When you go into a patient's room and do the nursing assessment, you run down the FHPA mentally. It makes you more focused. The program helps you to think about discharge planning. It's good for other nurses to read too. No one read the old admission summaries."

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